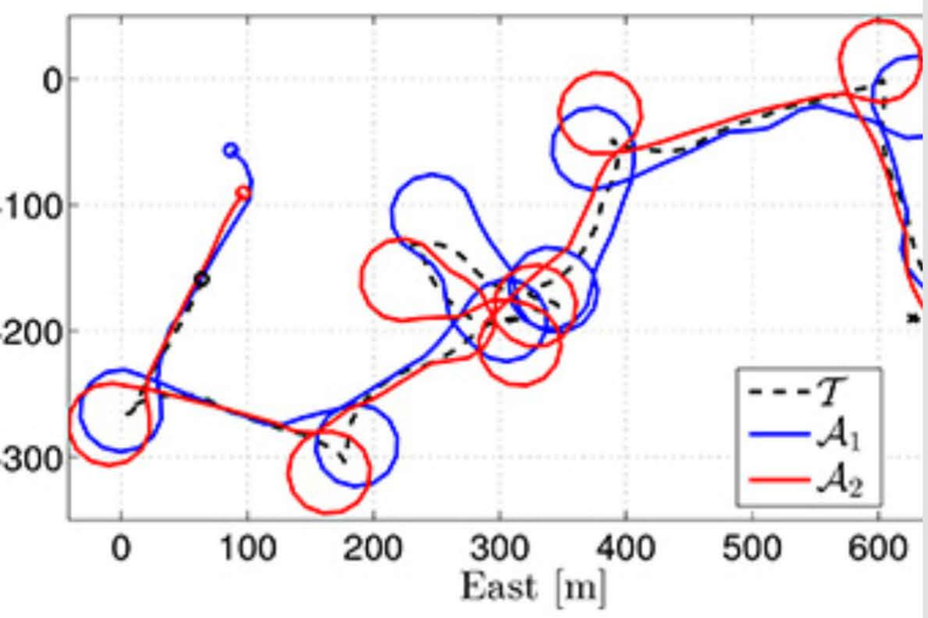
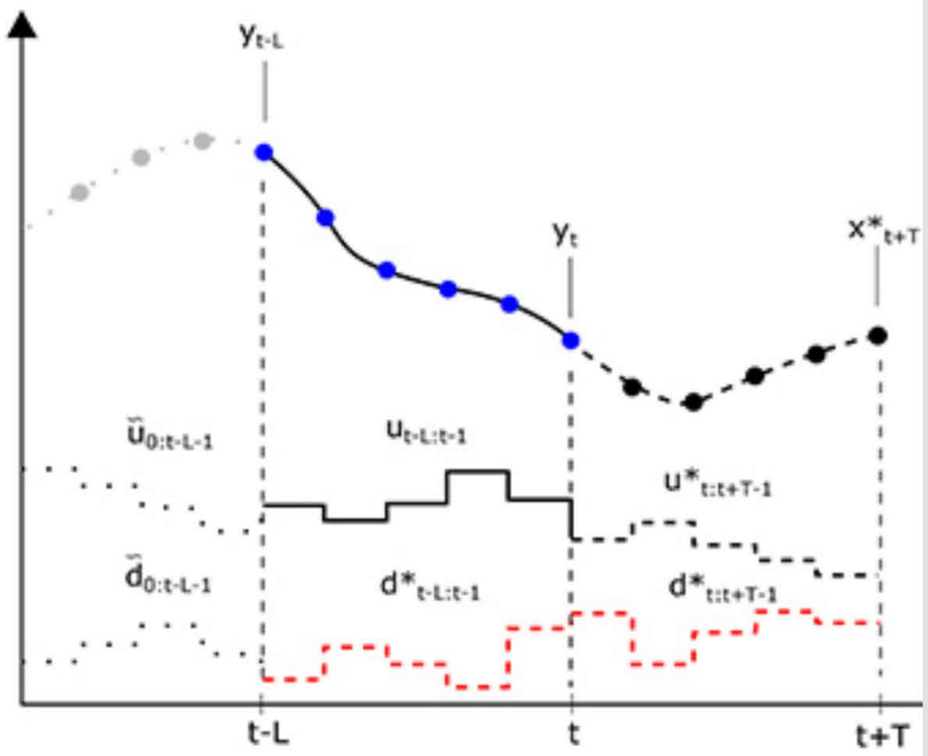
Dr. David A. Copp

David Copp received the B.S. degree in mechanical engineering from the University of Arizona in 2011 and the M.S. and Ph.D. degrees in mechanical engineering from the University of California at Santa Barbara in 2014 and 2016, respectively, where he was a member with the Center for Control, Dynamical-Systems, and Computation. He is currently with Sandia National Laboratories, where he works on grid integration, analysis, and control of energy storage systems. His broad research interests include control, modeling, analysis, and simulation of nonlinear and hybrid systems with applications to power and energy systems, multi-agent systems, robotics, and biomedicine.





Topics in Control Systems:

Convex Optimization and Optimal Control

ECE 649

to be held Monday & Wednesday 3:30-4:45pm. in ECE 237

Control systems are all around us, from the thermostat in your home to robots, like drones and self-driving cars, and the emerging smart electric power grid. Control systems often involve autonomous decision-making, and many incorporate optimization to find the best possible solution. This class is suitable for students who have taken linear algebra and are interested in learning how to mathematically formulate and solve optimization problems. Currently, top tech companies are recruiting engineers who specialize in control systems to work on drones, self-driving cars, algorithms for advertising, biomedical devices, among many other things. Government agencies are also interested in control systems for numerous military applications, satellite routing and tracking, power and energy systems, etc.

This class will cover the fundamentals of convex optimization, which can be applied to many areas in ECE, including robotics, cyber-physical systems, embedded sensing and computing, state and parameter estimation, circuit design, numerical computation, and others. Therefore, it can be beneficial even to students in other disciplines like mechanical engineering or computer science. Convex optimization and optimal control are separate subfields of mathematics. However, optimal control often involves formulating and solving convex optimization problems. Therefore, some knowledge of optimization is beneficial before studying some kinds of optimal control.

If you have questions about this class, please contact Dr Copp at dcopp@unm.edu

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